REMARKS

Claims 1-3 and 9-16 are currently pending in this application. Applicants have withdrawn claims 3-8 and 17-25 from consideration without prejudice in response to a restriction requirement. Reconsideration is respectfully requested in light of the above amendments and the following remarks.

The Examiner rejected claims 1-2 and 9-16 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent 6,813,514 to Kroll et al. The Examiner also rejected claims 1-2 and 9-16 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 5,740,811 to Hedberg et al. Applicants respectfully traverse these rejections.

Applicants' claimed invention as recited in claims 1 and 16 is directed to a method and corresponding system for emulating a surface electrocardiogram (EKG) of a patient. For example independent claim 1 recites a method comprised in party by sensing separate cardiac signals ... and selectively <u>concatenating portions</u> of the <u>separate</u> cardiac <u>signals</u> to yield an <u>emulated</u> surface EKG having a <u>first emulated portion</u> formed by a portion of a first cardiac signal and a <u>second emulated portion</u> formed by a portion of a <u>second cardiac signal</u>. (Underlining added for emphasis only). Applicants respectfully submit that neither Kroll et al. nor Hedberg et al. do not disclose or suggest the recited claim elements.

Rather, the system Kroll et al. utilizes multiple internal cardiac signals to generate emulated surface EKGs. For example, Kroll et al. convert initial internal cardiac electrical signals into a time-varying vector $F(t)$ having individual elements corresponding to the various pairs of electrodes. The system of Kroll et al. then scales the internal cardiac signals with a set of weighting factors that generally represent the relative extent to which the internal voltage derived from each electrode pair influences the surface voltage of the surface vector that is being emulated. In the system of Kroll et al., the surface voltage for any give location is obtained by <u>summing</u> each of the internal voltages times their respective weighting factors. (Kroll et al., col. 19, line 66 – col. 20 line 3).

Similarly, Hedberg et al. process in vivo signals and then <u>add</u> them together (in their <u>entirety</u>) to form the synthesized signal. Hedberg et al. disclose that the reason for adding the signals from the electrodes is that they will simulate a signal obtained from a bigger electrode. (Hedberg et al. col. 6, lines 63-65). For example, in FIG. 13 transforming units, which process each of the electrode outputs, are coupled to a combining unit by multipliers which individually weigh each signal under the control of a microprocessor. The <u>combining unit</u> includes a <u>summation stage</u> which <u>sums</u> the outputs of the multipliers (in their entirety) to form the synthesized surface ECG. (Hedberg et al. col. 8, lines 15-50). Thus, Hedberg et al. process individual signals from separate electrodes and <u>sum</u> them together in their <u>entirety</u> to form an emulated surface ECG.

The Examiner argues that summing together of two signals (in their entirety) as taught by Kroll et al. and Hedberg et al. is equivalent to concatenating (i.e. linking or joining together) <u>portions</u> of the <u>separate</u> cardiac <u>signals</u> to yield an <u>emulated</u> surface EKG as recited in Applicant's claimed invention. Applicants disagree.

The summing together of two or more signals (to combine into an aggregate or total through addition) creates a new signal that is different from either of the signals that were summed. Concatenation of portions of separate signals as recited in the claimed invention creates a new signal that formed in part solely by and identical to the portions of concatenated signals.

For example, the sum of two signals each having a value of two for a first portion and value of four for a second portion of the signal is a signal having a value of four for a first portion and a value of eight for a second portion of the summed signal. However, the concatenation of the first and second signals would be a combined signal having a value of two for the first portion and value of four for the second portion of the combined signal.

Accordingly, Applicants respectfully submit that claims 1 and 16 are novel and non-obvious over Kroll et al. and Hedberg et al. and are therefore allowable. Applicants further submit that claims 2 and 9-15 that depend from claim 1 are allowable as is claim 1 and for additional limitations recited therein.

In light of the above amendments and remarks, it is respectfully submitted that the application is in condition for allowance, and an early notice of allowance is requested.

Respectfully submitted,

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